UNITED STATES MARINE CORPS FIELD ARTILERY FIRE CONTROLMANS COURSE

PURPOSE

- TO ENABLE THE STUDENT TO DETERMINE FIRING DATA USING THE APPROPRIATE TABULAR FIRING TABLES (TFT)AND GRAPHICAL FIRING TABLES(GFT)

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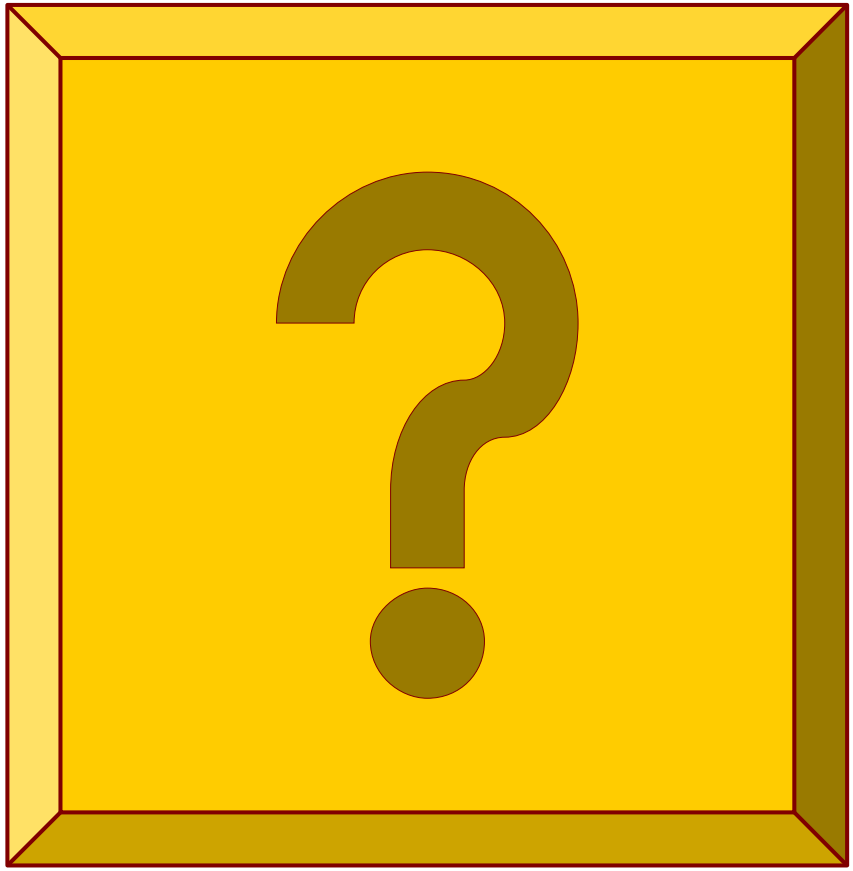
- COMBINES DATA PROVIDED BY OTHER PERSONNEL.
- DETERMINES FIRING DATA AND ANNOUNCES FIRING COMMANDS
- RECORDS ALL MISSION RELATED DATA
- DETERMINES GFT SETTINGS



COMPONENTS OF FIRING DATA

- SHELL
- CHARGE
- FUZE &FUZE SETTING
- DEFLECTION
- QUADRANT ELEVATION

SHELL

- PROJECTILE: ALL PROJECTILES FALL INTO TWO BASIC CATEGORIES BASED ON THE FILLER THE PROJECTILE CONTAINS.
  - BURSTER: M107 HE, M110 WP
  - BASE EJECTING: M483A1 DPICM, M485A1 ILLUM

CHARGE

- THE NAME GIVEN TO THE PROPELLANT THAT CAUSES THE PROJECTILE TO TRAVEL TO THE TARGET.
  - M3A1- GREEN BAG ZONED 1-5
  - M4A2- WHITE BAG ZONED 3-7

FUZE & FUZE SETTING

- FUZE IS THE MECHANICAL OR ELECTRICAL DEVICE THAT CAUSES THE PROJECTILE TO FUNCTION.
  - THREE BASIC CATAGORIES:
    - POINT DETONATING- ALSO KNOWN AS QUICK OR PD FUZE. CAUSES THE PROJECTILE TO BURST ON IMPACT OR AT A .05 SECOND DELAY BY USE OF A SELECTOR SCREW. USED WITH BURSTER TYPE PROJECTILES.

FUZES (CONTINUED)

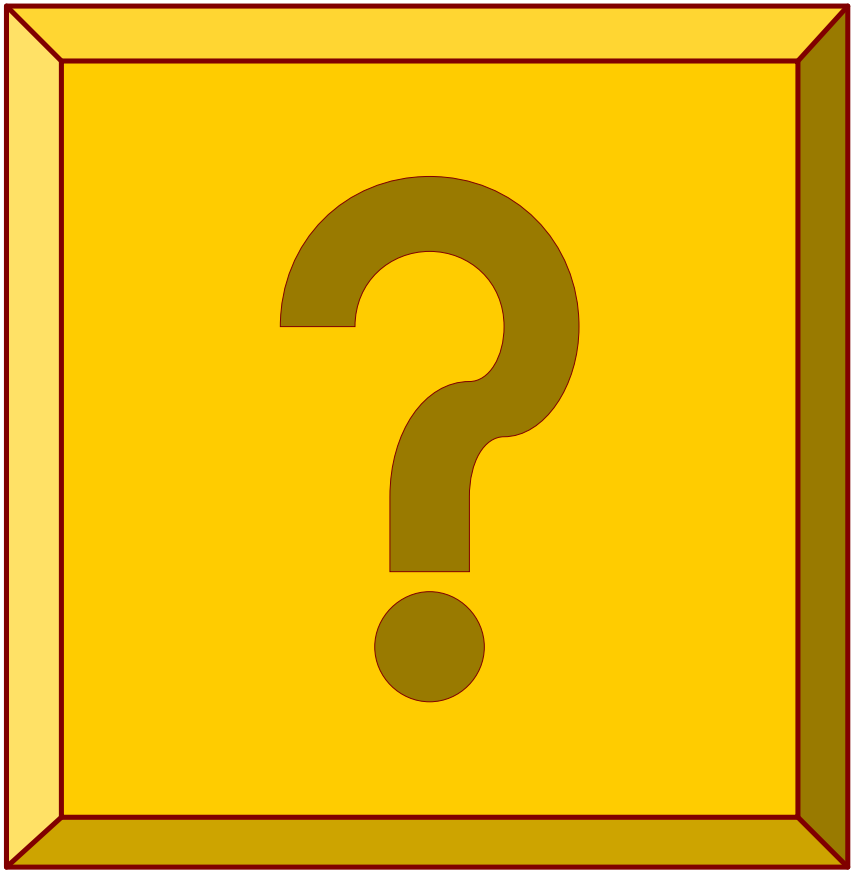
- MECHANICAL TIME SUPER QUICK : ALSO CALLED MTSQ OR TIME FUZES DESIGNED FOR USE WITH BURSTER OR BASE EJECTING TYPE PROJECTILES. OPTIMUM HEIGHT OF BURST 20 METERS IN THE AIR. MAY ALSO BE USED AS A PD BY USE OF THE SUPER QUICK MODE

FUZES (CONTINUED)

- VARIABLE TIME FUZES: ALSO KNOWN AS VT OR PROXIMITY FUZES, USED WITH BURSTER TYPE PROJECTILES, OPTIMUM HEIGHT OF BURST 7 METERS.

DF AND QE

- DEFLECTION- THE DIRECTION FROM THE GUN TO THE TARGET.
- QUADRANT ELEVATION- IS THE ANGLE IN THE VERTICAL PLANE THAT THE TUBE MUST BE ELEVATED IN ORDER TO ENGAGE THE TARGET



TABULAR FIRING TABLES (TFT)

A TFT IS PROVIDED FOR EACH WEAPON SYSTEM A
PROJECTILE FAMILY THE WEAPON IS ABLE TO FIRE.

A PROJECTILE FAMILY IS A GROUP OF PROJECTILES
WHOSE FLIGHT IS SUFFICICIENTLY SIMILAR TO ALL
THEM TO BE FIRED WITH THE SAME FIRING DATA.

THE TFT IS IDENTIFIED BY THE CALIBER AND LETT
DESIGNATION LISTED IN THE TOP RIGHT CORNER.

FORMAT OF THE TFT

1. INTRODUCTION

GENERAL INFORMATION (PGS, IV - IX)

WEAPON CHARACTERISTICS (PG, X)

PROJECTILE- FUZE COMBINATIONS AND MEAN WEIGHTS (PG, XI)

EXPLANATION OF TABLES (PGS, XVI – XXII)

1. INTRODUCTION (CONT)

PROBLEMS (PG, XXVII)

INTERPOLATION RULE

"INTERPOLATION IN A GIVEN TABLE CANNOT RESULT A VALUE WITH MORE DECIMAL PLACES THAN VALUES LISTED IN THE TABLE"

ARTILLERY EXPRESSION

LAST DIGIT IS BETWEEN 1 -4 EXPRESS DOWN.
LAST DIGIT IS BETWEEN 6-9 EXPRESS UP.
LAST DIGIT IS A 5, EXPRESS TO THE EVEN VALUE

1. INTRODUCTION (CONT)

EXPRESS TO THE NEAREST

1. TENTH	1.23	1.2
2. HUNDRED	3780	3800
3. WHOLE NUMBER	19.5	20
4. TEN	143	140
5. THOUSAND	2500	2000
6. HUNDREDTH	0.576	0.58

1. INTRODUCTION (CONT)

CHARGE SELECTION TABLE AND CONVERSION FACTORS (PG , LIII)

2. PART I

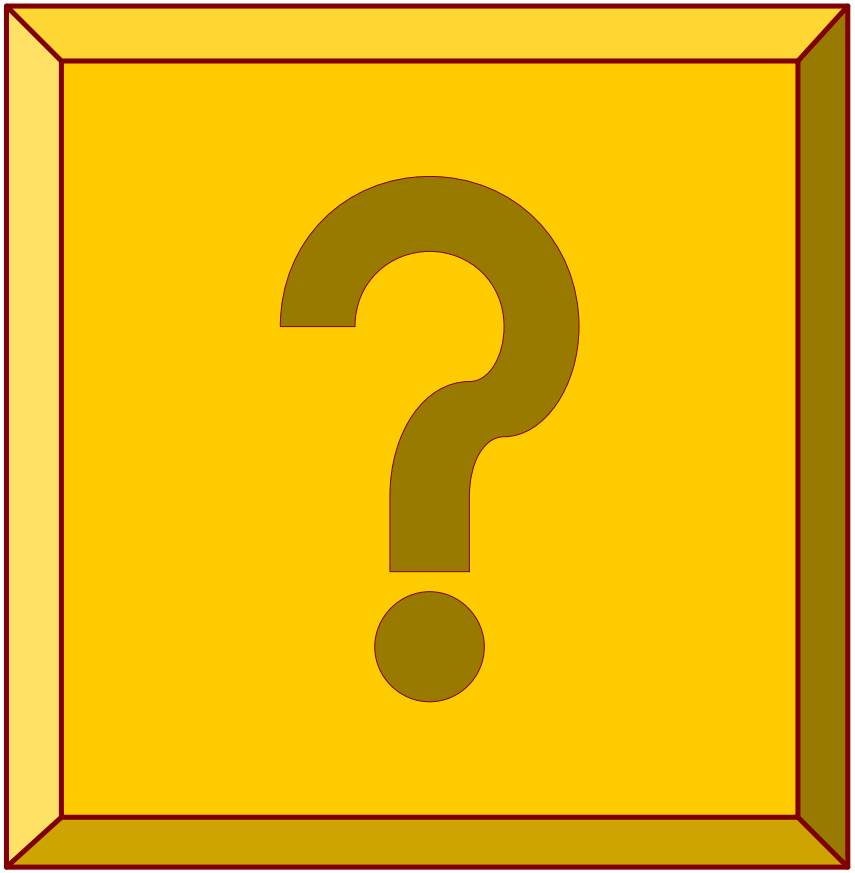
CONTAINS TABLES THAT PROVIDE FIRING DATA AND CORRECTION FOR BASE SHELL AND INCREMENTS OF PROPELLING CHARGES

3. PART II

THIS AREA OF THE TFT PROVIDES FIRING DATA F THE ILLUMINATION SHELL.

4. APPENDICES

CONTAINS THAT PROVIDE DATA CONCERNING TH SHAPE AND ALTITUDES OF THE TRAJECTORY OF A GIVEN RANGE, QUADRANT, AND CHARGE.



BASIC DATA

COL 1	COL 2	COL 7			COL 4		COL 8
CHG	RANGE	ELEVATION	TI(FSM582)	VT FS	TOF	DFS	100/R	20/R	DRIFT
4G	4100	239	14.5	14.0	14	0.14			L4

4100

238.6~239

14.5

VANISH TENTHS REPLACE WITH .0 14.5~14.0

EXPRESSED TO NEAREST WHOLE SECOND 14.0~14

0.14

L4.4~L4

GD41FT 20

100/R

COL 1	COL 3	COL 7			COL 4		COL 8		
CHG	RANGE	ELEVATION	TI(FSM582)	VT FS	TOF	DFS	100/R	20/R	DRIFT
4G	4100	239	14.5	14.0	14	0.14	25	5	L4

100/R WILL MOVE THE STRIKE OF THE ROUND LEFT OR RIGHT UP OR DOWN 100 METERS
IT IS EXPRESSED TO THE NEAREST WHOLE MIL

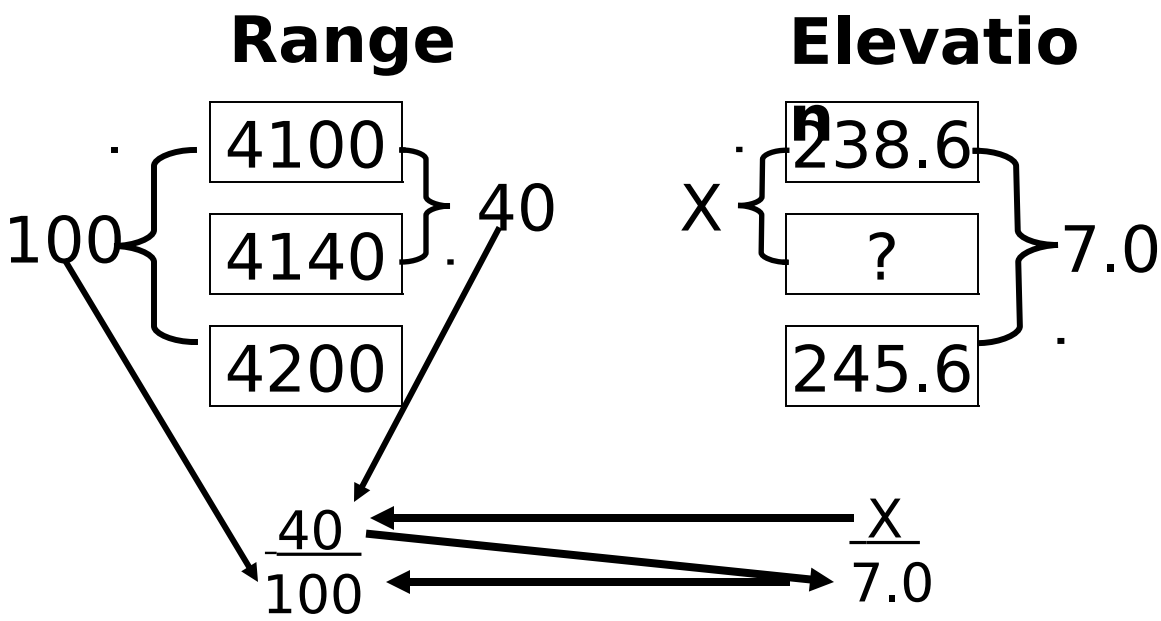
THE FORMULA IS: 100/R=[100/(RANGE/1000)]*1.0186
100/R=[100/(4100 /1000)]*1.0186
100/R=[100/ 4.1]*1.0186
100/R= 24.843901
100/R=24.8 ~ 25

20/R WILL MOVE THE STRIKE OF THE ROUND LEFT OR RIGHT UP OR DOWN 20 METERS
EXPRESSED TO THE NEAREST WHOLE MIL

THE FORMULA TO DETERMINE 20/R IS THE VALUE OF 100/R DIVIDED BY 5

	COL 1	COL 3	COL 7		COL 4			COL 8	
CHG	RANGE	ELEVATION	TI(FSM582)	VT FS	TOF	DFS	100/R	20/R	DRIFT	
4G	4100	239	14.5	14.0	14	0.14	25	5	L4	
	4140	241								

INTERPOLATION



X=40*7.0/100

x=2.8

238.6

+ 2.8

241.4~241